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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,740	09/26/2003	Koji Imai	501315.20005	9445

7590

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EXAMINER

DO, AN H

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

**Office Action Summary**

Application No.

10/672,740

Applicant(s)

IMAI ET AL.

Examiner

An H. Do

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 July 2005.  
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.  
 4a) Of the above claim(s) 1-8, 13, 17-19, 22, 23 and 25 is/are withdrawn from consideration.  
 5) ☒ Claim(s) 14-16, 20, 21 and 24 is/are allowed.  
 6) ☒ Claim(s) 9-11 is/are rejected.  
 7) ☒ Claim(s) 12 is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☒ All b) ☐ Some \* c) ☐ None of:  
 1. ☒ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date 6/30/04.  
 4) ☐ Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) ☐ Notice of Informal Patent Application (PTO-152)  
 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

The Response filed on 01 July 2005 has been acknowledged.

#### ***Election/Restrictions***

1. Applicant's election without traverse of Species A – Readable on claims 9-12, 14-16, 20, 21 and 24 in the reply filed on 01 July 2005 is acknowledged.
2. Claims 1-8, 13, 17-19, 22, 23 and 25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 01 July 2005.

#### ***Priority***

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

#### ***Information Disclosure Statement***

4. The information disclosure statement (IDS) submitted on 30 June 2004 was filed and is being considered by the examiner.

#### ***Claim Objections***

5. Claims 9, 14 and 24 are objected to because of the following informalities:

##### **In claim 9:**

-Replace "a plurality" in line 10 with --the plurality--

-Replace "an inkjet head" in line 11 with --the inkjet head--

##### **In claim 14:**

-Replace "a surface" in line 11 with --the surface--

-Replace "an inkjet head" in line 11 with --the inkjet head--

-Replace "a plurality" in lines 11 and 12 with --the plurality--

In claim 24:

-Replace "a surface" in line 8 with --the surface--

-Replace "an inkjet head" in line 8 with --the inkjet head--

-Replace "a plurality" in lines 8 and 9 with --the plurality--

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watrobski (US 4,878,070) in view of Wong et al (US 6,328,423).

Watrobski discloses in Figures 3-5 the following claimed features:

Regarding claim 9, a printed circuit board (Figure 4, flexible printed circuit 60) for being connected with an inkjet head (Figure 3) having a surface on which a plurality of head terminals (Figure 5, contacts 70) are arranged, the printed circuit board (flexible printed circuit 60) comprising:

- an insulating member (60); and
- a plurality of lands (dimple pads 54, 72) and a plurality of conductive wires (electrodes 62) provided on the insulating member (60), each land (54, 72) being connected to a

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corresponding conductive wire (62), the plurality of lands (54, 72) being arranged on the insulating member (60) at locations in one-to-one correspondence with the plurality of head terminals (70) provided on the inkjet head (Figure 5), the insulating member (60) being formed with a plurality of through-holes ("dimples", column 4, line 1) each for exposing a portion of a corresponding land (54), the lands (54, 72) facing through the through-holes ("dimples", column 4, line 1) to the head terminals (70) on the inkjet head, the through-hole on each land receiving a conductive brazing material placed therein (it's inherent that the filled pads must be conductive in order to electrically connect to the print head).

Regarding claim 10, wherein the plurality of lands (54, 72) is arranged in a staggered manner on the insulating member (60), and the conductive wires (62) are formed on the insulating member (60) at locations between the lands (Figure 4).

Watrobowski discloses the claimed invention except for reciting the following:

Further regarding claim 9, the conductive brazing material being melted to connect and fix each land to the corresponding head terminal.

Regarding claim 11, each head terminal is provided with a portion retaining a portion of the brazing material thereon to prevent the brazing material from contacting another head terminal next to the subject head terminal.

Wong et al teach the following:

Further regarding claim 9, the conductive brazing material being melted to connect and fix each land to the corresponding head terminal (column 2, lines 58-67).

Regarding claim 11, each head terminal is provided with a portion retaining a portion of the brazing material thereon to prevent the brazing material from contacting another head terminal next to the subject head terminal (column 2, lines 58-67).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the conductive brazing material being melted to connect and fix each land to the corresponding head terminal, as taught by Wong et al into Watrobski, for the purpose of preventing the electrical shortage between adjacent connections (column 2, lines 62-64).

***Allowable Subject Matter***

8. Claims 14-16, 20, 21 and 24 are allowed.

The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 14-16, 20, 21 and 24 is the inclusion of the limitation of a printed circuit board for being connected with an inkjet head that includes an insulating member includes a flexible belt-shaped insulating sheet having first and second surfaces opposite to each other, wherein the plurality of lands and the plurality of conductive wires are provided on the first surface of the flexible belt-shaped insulating sheet, and wherein each through-hole is formed through the flexible belt-shaped insulating sheet at a location for exposing the portion of the corresponding land on the second surface, the second surface of the flexible belt-shaped insulating sheet facing toward the inkjet head. It is this limitation found in the claims, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

9. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the allowance of claim 12 is the inclusion of the limitation of a printed circuit board for being connected with an inkjet head that includes an insulating member includes a flexible belt-shaped insulating sheet having first and second surfaces opposite to each other, wherein the plurality of lands and the plurality of conductive wires are provided on the first surface of the flexible belt-shaped insulating sheet, and wherein each through-hole is formed through the flexible belt-shaped insulating sheet at a location for exposing the portion of the corresponding land on the second surface, the second surface of the flexible belt-shaped insulating sheet facing toward the inkjet head. It is this limitation found in the claims, as it is claimed in the combination of, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Feinn et al (US 6,322,200) disclose an inkjet printhead

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connected to a flexible circuit having electrical traces formed thereon. Ikeda et al (US 4,922,269) disclose a liquid recording head electrically and mechanically connected to a support member having electrodes formed thereon.

***Contact Information***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to An H. Do whose telephone number is 571-272-2143.

The examiner can normally be reached on Monday-Friday (Flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



An H. Do  
September 16, 2005